



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/830,380	04/25/2001	Bernard Andre	BREV 13186	7186

7590 02/26/2003

Hayes Soloway Hennessey  
Grossman & Hage  
175 Canal Street  
Manchester, NH 03101-2335

EXAMINER

DICUS, TAMRA

ART UNIT	PAPER NUMBER
----------	--------------

1774

DATE MAILED: 02/26/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-9

# Office Action Summary

Application No.

09/830,380

Applicant(s)

ANDRE ET AL.

Examiner

Tamra L. Dicus

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(e). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other:

## DETAILED ACTION

### *Response to Amendment*

The Examiner acknowledges cancellation of claims 1-10 and non-elected claims 11-13. The claim objection and 112 second paragraph rejection are withdrawn.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 14-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,399,435 to Ando et al. in view of USPN 5,670,248 to Lazarov et al. and further in view of USPN 5,623,375 to Floch et al.

Ando teaches an amorphous hafnium oxide thin film (layer) on a glass, or plastic substrate at col. 1, lines 10-15, col. 2, lines 29-40, and col. 3, lines 12-53. Such a thin film may be included in a stack of thin layers, where a metal oxide, such as silicon oxide may be above or below an amorphous hafnium oxide layer (see col. 9, lines 25-65), which may be any optical component such as a mirror, glass, or camera lens at col. 1, lines 10-16.

Ando does not explicitly state the density of an amorphous hafnium oxide layer. Nevertheless, Lazarov teaches material in amorphous form of a metal such as hafnium oxide that may have a density between 3.7 and 4.5 g/cm<sup>3</sup>, meeting the Applicant's limitation of a density

Art Unit: 1774

less than  $8 \text{ g/cm}^3$ . See col. 3, lines 22-25, 30-39, 62-63 and col. 5, line 12. Hence, it would have been obvious to one of ordinary skill in the art to modify the thin layer or stack of layers of Ando to produce a film that may be employed as an antireflective filter, optimizing adsorption of wavelengths for use in various industries as taught by Lazarov at col. 5, lines 10-47.

While Ando does not specifically state amorphous hafnium oxide being in alternate layers, he does state since the substrate may be of any metal oxide, such as silica at col. 9, line 30-31, a stack of layers comprising amorphous hafnium oxide may be on each side of the substrate. In addition, Floch teaches it is well known to produce layers of metal oxides, such as hafnium and silicon in alternating fashion in order to produce optical articles such as mirrors that have a desired wavelength at col. 3, lines 4-25. Therefore it would have been obvious to one of ordinary skill in the art to modify the stack of films of Ando to include alternative layers of amorphous hafnium oxide as taught by Ando to produce a different arrangement and also by Floch to prevent cracks and vary the refractive indices depending upon the desired wavelength or thickness of a stack of thin films or optical component.

All references are analogous art as both references are in the same field of endeavor, such as optical film technology.

### *Response to Arguments*

3. Applicant's arguments filed 12-9-02 have been fully considered but they are not persuasive. Applicant's contention that the Lazarov reference does not teach the density being less than  $8 \text{ g/cm}^3$  is not agreed with. In the same paragraph Applicant references (col. 3, lines 5-38), Lazarov explicitly states  $\text{MO}_2$  being included as a suitable component in thin film deposition,

Art Unit: 1774

explicitly stating "M" including Hafnium (Hf), hence the compound hafnium oxide ( $\text{HfO}_2$ ) is taught having a density less than  $8 \text{ g/cm}^3$ , which is on at least one glass/optical/plastic substrate. Applicant points to the Lazarov col. 3 paragraph and maintains that this paragraph does not refer to  $\text{HfO}_2$  alone but a material with additional metals and so does not refer to  $\text{HfO}_2$  with a density of  $8 \text{ g/cm}^3$  or less. However, Lazarov makes reference to a thin layer of  $\text{HfO}_2$  as an additional single layer at col. 5, line 12. Further referencing the total mass density is  $3.7\text{-}4.5 \text{ g/cm}^3$ , it would have been obvious to one of ordinary skill in the art to modify only follow that the density for  $\text{HfO}_2$  would be less than  $8 \text{ g/cm}^3$ . Also, Ando teaches deposition of thin hafnium oxide on an optical element, glass, or plastic substrate. The combination of the art is reasonable as each piece of art is drawn to films made of  $\text{HfO}_2$ . Applicant's "essentially consisting of" language does not overcome the rejection. See MPEP 2111.03. Applicant is referring to the film as if it is not deposited on the substrate. The entire specification is drawn to depositing films to a thin stack of films. That the references do not explicitly state the film is alone by itself, does not mean the film cannot exist without the substrate. Applicant does not explain how it is made to stand alone. Applicant only shows how it is made through deposition. The Examiner maintains the position that this is the same as the reference depositing film on a substrate.

### *Conclusion*

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

Art Unit: 1774

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is (703) 305-3809. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on (703) 308-0449. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-8329 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Tamra L. Dicus  
Examiner  
Art Unit 1774

February 23, 2003

CYNTHIA H. KELLY  
SUPERVISOR, ART EXAMINER  
TECHNOLOGY CENTER 1/00

